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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,857	12/01/2000	Gary W. Kwong	56208USA8A	4252
32692	7590	05/18/2004		
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
			EXAMINER JUSKA, CHERYL ANN	
			ART UNIT 1771	PAPER NUMBER

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/728,857

Applicant(s)

KWONG ET AL.

Examiner

Cheryl Juska

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 56-81 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 56-81 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed February 24, 2004 has been entered. Claims 1-55 have been cancelled as requested. New claims 56-81 have been added.
2. The cancellation of the previously pending claims renders moot the rejections set forth in the last Office Action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 69-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 69 is rejected for a lack of antecedent basis for the acrylic acid monomers. Claim 69 depends from claim 68, which depends from claim 56. However, said acrylic acid monomers are not recited until claim 67. Claim 70 is similarly rejected.
6. Claim 71 is rejected for a lack of antecedent basis for the ethylenically unsaturated monomers. Claim 71 depends from claim 68, which depends from claim 56. However, said monomer is not recited until claim 67.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 56-66 and 79-81 are rejected under 35 USC 102(b) as being obvious over US 4,240,943 issued to Sugawara et al. in view of US 4,499,233 issued to Tetenbaum et al.

Applicant claims a water dispersible finishing composition comprising (a) a urethane comprising the reaction product of (i) a polyisocyanate, such as triisocyanate, (ii) a long chain alcohol, such as stearyl alcohol, and (iii) a polyethylene oxide containing at least one hydroxy group and (b) a stainblocker. The urethane has a weighted average HLB of 1-11, preferably 2-8. The polyethylene oxide containing one hydroxy group may be a monomethoxy polyethylene oxide having a molecular weight ranging from 350-2000. Alternately, said polyethylene oxide comprises a polyethylene oxide group and a (C₁ - C₂₄) alkoxy group. The amount of polyethylene oxide ranges from 5-55 wt % based upon the weight of the urethane. The polyisocyanate and the long chain alcohol may be present in equivalent amounts.

The finishing composition may also contain an anti-soiling agent and a divalent metal salt. The anti-soiling agent may be a methacrylic ester polymer, a colloidal alumina, a colloidal silica, a silsesquioxane, a polyvinylpyrrolidone, or a water-soluble condensation polymer comprising a reaction product of formaldehyde and an amine.

The stainblocker is preferably a sulfonated aromatic polymer, a polymer of the reaction product of one or more acrylic acid monomers, and a copolymer of an ethylenically unsaturated

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monomer and maleic anhydride. The one or more acrylic acid monomers may be an alpha- or beta-substituted acrylic acid, while the ethylenically unsaturated monomer may be an alpha-olefin, such as an alkene having 4-12 carbon atoms. Additionally, the composition may be free of fluorochemicals and may be cured at or above ambient temperature.

Sugawara discloses a textile finishing composition comprising a water dispersible urethane made by reacting a polyisocyanate with a polyfunctional compound reactive to said isocyanate (col. 1, lines 6-9 and 65-68). The polyisocyanate may be a triisocyanate (col. 2, lines 51-56). The polyfunctional compound may be a polyether polyol so that the urethane has 10-90 wt % hydrophilic oxyethylene units (col. 2, lines 22-42 and lines 57-64). Sugawara also teaches additives, such as antistatic agents, stain preventing agents, and softeners (col. 3, lines 57-61).

Thus, Sugawara teaches the presently claimed invention with the exception of the recited HLB values and the long chain alcohol, such as stearyl alcohol. With respect to the former exception, it is reasonable to presume that said values would be met by the composition of the Sugawara polyurethane. Support for said presumption is found in the use of like reactants to form polyurethane and the like application of said urethane as a textile finishing composition. With respect to the latter exception, it is noted that long chain alcohols, such as stearyl alcohol is well known in the art of polyurethanes as a capping agent. For example, Tetenbaum discloses a water dispersible modified polyurethane that is the reaction product of (i) a polyisocyanate, (ii) a polyether polyol, (iii) a modifying agent containing at least two active hydrogen moieties, and (iv) a capping agent (abstract). The capping agent may be a hydroxyl compound such as stearyl alcohol (col. 9, lines 13-31). Thus, it would have been obvious to one skilled in the art to include stearyl alcohol, as taught by Tetenbaum, in the Sugawara invention in order to cap the ends of

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the polymer chain so as to keep the urethane water dispersible. Therefore, claims 56-59, 63, 65, and 79 are rejected as being obvious over the cited prior art.

With respect to claims 60-62, 64, 66, and 80, it is reiterated that Sugawara teaches the polyfunctional compound may be a polyether polyol so that the urethane has 10-90 wt % hydrophilic oxyethylene units and Tetenbaum teaches the polyether polyol is a homopolymer or block copolymer of $[-O-CR_1R_2-CR_3R_4-]$ wherein R_1 , R_2 , R_3 , and R_4 are independently selected from the group consisting of H, CH_3 , and C_2H_5 (col. 5, lines 35-47). Tetenbaum's polyether polyol is present in an amount ranging from 0.10 to 10.0 moles per mole of polyisocyanate (col. 5, lines 31-35) and has a molecular weight of from 4,000 to 20,000, but molecular weights below 4000 are useable (col. 6, lines 5-14). Thus, the limitations of said claims would have been obvious to one of ordinary skill in the art since the claimed polyethylene oxides are known in the art as suitable for urethane finishing compositions.

With respect to claim 81, it is argued that the finishing composition of the cited prior art is curable at ambient or above temperatures since said composition is aqueous based. Additionally, note Sugawara teaches treating a cotton cloth with a finishing composition and then drying in an oven for a few minutes. Hence, claim 81 is rejected.

9. Claims 67 and 69-72 are rejected under 35 USC 103(a) as being unpatentable over the cited Sugawara reference in view of the cited Tetenbaum reference, as applied to claim 56 above, and in further view of US 5,073,442 issued to Knowlton et al., US 3,632,419 issued to Horie et al., and US 5,770,656 issued to Pechhold.

As noted above, Sugawara in view of Tetenbaum teach the claimed textile finishing composition comprising a water dispersible urethane including a stain blocker. Sugawara is

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silent, however, with respect to specific stain preventing agents. The presently claimed stainblockers are well known in the art. For example, Knowlton discloses a soil and/or stain resistant treatment for wool or nylon fabrics comprising sulfonated resins, such as sulfonated phenolic compounds (abstract). Additionally, Horie discloses a method of imparting a durable soil-resistant finish to polyester or nylon fabrics comprising applying a composition including a polymer hydrosol such as polymethacrylic acid and a melamine-formaldehyde resin (abstract). Furthermore, Pechhold discloses an ester formed from a copolymer of maleic anhydride and an alpha-olefin monomer for treatment of a fabric for soil and stain resistance (abstract and col. 4, lines 28-33).

Since Sugawara is silent with respect to specific stain preventing agents, one must look to the prior art to select a suitable agent. Thus, it would have been obvious to one skilled in the art to employ known stain preventing agents, such as those evidenced by Knowlton, Horie, and Pechhold, in the Sugawara and Tetenbaum textile finishing composition in order to enhance the soil and stain resistance of a fabric. Therefore, claims 67 and 69-72 are rejected over the cited prior art.

10. Claims 73 and 78 is rejected under 35 USC 103(a) as being unpatentable over the cited Sugawara, Tetenbaum, Knowlton, Horie, and Pechhold references.

Although Sugawara teaches the use of a stain preventing agent, the reference is silent with respect to the use of said stain preventing agent in conjunction with an anti-soiling agent. However, it is noted that the terms soil/ stain preventing and soil/stain resistant or anti-soil/anti-stain are used interchangeable in the art of textiles. For example, what applicant calls a stain blocker, Knowlton, Horie, and Pechhold call soil/stain-resistant. Thus, it would have been

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obvious to one skilled in the art to employ one or more of the known agents for preventing or blocking stains or soiling. It has been held obvious to combine two compositions each of which is taught by prior art to be useful for the same purpose in order to form a third composition that is to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. Thus, the claims which are no more than mixing together of two conventional compositions are set forth as obvious subject matter. Therefore, claims 73 and 78 are rejected.

11. Claims 74 and 75 are rejected under 35 USC 103(a) as being unpatentable over the cited Sugawara, Tetenbaum, Knowlton, Horie, and Pechhold patents in view of US 5,370,919 issued to Fieuws et al.

Sugawara does not explicitly teach the claimed anti-soiling agents, but does teach the use of a stainblocker. However, as noted above, it would have been obvious to one skilled in the art to employ more than one soil or stain resistant agent in order to improve the soiling characteristics of the invention. The presently claimed anti-soiling agents are well known in the art. For example, Fieuws teaches a treatment composition comprising an anti-soiling agent, such as colloidal alumina or silica (col. 7, lines 1-5). Thus, it would have been obvious to one skilled in the art to add an anti-soiling agent as taught by Fieuws to the Sugawara and Tetenbaum composition in order to improve the soiling resistance of the finishing composition. Therefore, claims 74 and 75 are rejected.

12. Claim 76 is rejected under 35 USC 103(a) as being unpatentable over the cited Sugawara, Tetenbaum, Knowlton, Horie, and Pechhold patents in view of US 3,493,424 issued to Mohrlök et al.

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Sugawara, Tetenbaum, Knowlton, Horie, and Pechhold do not teach the claimed silsesquioxane anti-soiling agent. However, said agent is well known in the art. For example, Mohrluk teaches a silsesquioxane treatment composition for imparting anti-slip properties and soil-resistance to fabrics (abstract). Thus, it would have been obvious to one skilled in the art to add the silsesquioxane anti-soiling agent taught by Mohrluk to the Sugawara and Tetenbaum composition in order to further improve the soiling resistance of the finishing composition. Therefore, claim 76 is rejected.

13. Claim 77 is rejected under 35 USC 103(a) as being unpatentable over the cited Sugawara, Tetenbaum, Knowlton, Horie, and Pechhold patents in view of US 4,007,305 issued to Kakar et al.

Sugawara, Tetenbaum, Knowlton, Horie, and Pechhold do not teach the claimed polyvinylpyrrolidone anti-soiling agent. However, said agent is well known in the art. For example, Kakar teaches a polyvinylpyrrolidone treatment composition for imparting soil-release and repellency to fabrics (abstract). Thus, it would have been obvious to one skilled in the art to add the polyvinylpyrrolidone anti-soiling agent taught by Kakar to the Sugawara and Tetenbaum composition in order to further improve the soiling resistance of the finishing composition. Therefore, claim 77 is rejected.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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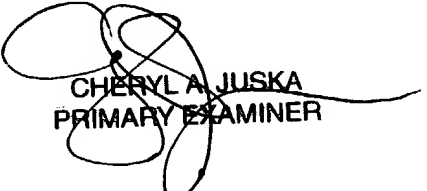
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl Juska whose telephone number is 571-272-1477. The examiner can normally be reached on Monday-Friday 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached at 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cj
May 16, 2004


CHERYL A. JUSKA
PRIMARY EXAMINER